

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 13 MAY 2004



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Applicant's or agent's file reference SLG/41227PCT1		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/IB 02/03351	International filing date (day/month/year) 19.08.2002	Priority date (day/month/year) 19.08.2002	
International Patent Classification (IPC) or both national classification and IPC H04B1/707			
Applicant NOKIA CORPORATION et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
 - ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 08.03.2004	Date of completion of this report 12.05.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Russo, M Telephone No. +49 89 2399-6052 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IB 02/03351

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-7 as originally filed

Claims, Numbers

1-20 as originally filed

Drawings, Sheets

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/B 02/03351**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-20
	No: Claims	
Inventive step (IS)	Yes: Claims	1-20
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/IB02/03351

Re Item I

The examination is being carried out on the following application documents:

Description, pages:

1-7 as originally filed

Claims, No.:

1-20 as originally filed

Drawings, sheets:

1/4-4/4 as originally filed

Re Item V

Reference is made to the following document cited in the International Search Report:

D1: WO-A2-0227960

1. Although independent claims 1 and 11 are not completely clear, they have been interpreted in the following way:
 - a. the wording "*if the magnitudes of the pair differ in a predetermined manner so as to exclude spurious paths*", attempting to define the subject-matter in terms of the result to be achieved by merely stating the underlying problem, has been interpreted in the light of the description as meaning that the ratio of the pair's amplitudes falls within a predetermined range;
 - b. claim 1 has been interpreted as apparatus type claim relating to a rake receiver, although it also contains steps of a method;
 - c. claim 11 has been interpreted as method type claim relating to a receiving method, although it is stated as device method and contains device features.
2. The invention described in **independent claims 1 and 11** of the present application consists of a rake receiver and a receiving method for CDMA signals, capable of avoiding allocation of fingers to spurious signal components due to the side lobes of the baseband pulse-shaping filter, which obviously do not represent a multipath

component to be tracked.

3. D1, regarded as being the closest prior art, discloses a method for assigning multipath components to rake fingers, taking particular consideration of the borderline cases of two signals converging into one or one diverging into two. This is performed by measuring the temporal gap between two signal components and assigning the most recently detected signal to a finger only if the temporal separation exceeds a predetermined value.
4. The invention of the application solves the problem of spurious due to filter side lobes by comparing pairs of peaks and: 1) determining if their temporal separation corresponds to the main and side lobes of the pulse-shaping filter; 2) determining if their amplitudes' ratio belongs to a certain range that identifies the weaker as spurious component. In case a spurious is recognized, it is discarded.
5. Even if the predetermined temporal threshold of D1 could be set to correspond to the side lobes of the pulse-shaping filter, the comparison of the peaks' magnitudes is not suggested by the prior art. As a matter of fact, D1 does not suggest the problem of the appearance of spurious signal components due to the temporal side lobes of the pulse-shaping filter, nor does it provide a solution therefor.

The solution of combining the measurement of the temporal distance with that of the amplitudes' ratio, proposed in **claims 1 and 11**, is therefore considered new and involving an inventive step (Article 33(2) and (3) PCT).

Claims 2-10, 12-20 are dependent on claims 1 and 11 and therefore fulfill as well the requirements of the PCT regarding novelty and inventive activity.